SJSU SAN JOSÉ STATE UNIVERSITY

College of Science · Computer Science

Introduction to Artificial Intelligence Section 03

CS 156

Fall 2023   3 Unit(s)   08/21/2023 to 12/06/2023   Modified 08/22/2023

Class Day/Time: TuTh 9:00AM - 10:15AM

Location: Sweeney Hall 435

👤 Contact Information

Instructor: Dr. Sayma Akther

Email: sayma.akther@sjsu.edu
Office: MH 213
Phone: (408) 924-2511

Office Hours

Wednesday, 2:00 PM to 4:00 PM, MH 213

If the office hours don't work for you, don't worry. Feel free to email me, and we can schedule a Zoom meeting at a more convenient time for you.

💻 Course Description and Requisites

Basic concepts and techniques of artificial intelligence: problem solving, search, deduction, intelligent agents, knowledge representation. Topics chosen from logic programming, game playing, planning, machine learning, natural language, neural nets, robotics.

Prerequisite(s): CS 146 (with a grade of C- or better); Computer Science, Software Engineering, or Data Science majors only, or instructor consent.

Letter Graded

✳ Classroom Protocols

To ensure a positive and productive learning environment, here are some important points to keep in mind:

Materials and Updates

- **Find course materials on Canvas at http://sjsu.instructure.com.**
- **Regularly check MySJSU and your email for updates.**

Recording and Privacy

- **Recording any class activities, including lectures, is only allowed with the instructor's permission.**
- **You are not permitted to share or distribute class recordings.**
- **Instructor-generated materials (like syllabi, lectures, and presentations) are protected by copyright.**
- **Violation may result in referral to Student Conduct and Ethical Development office.**

Respectful Behavior

- **Treat your fellow classmates with respect and kindness.**
- **Avoid interruptive or disruptive behavior during class.**
- **Limit electronic device usage to relevant learning activities.**
- **The full code of conduct is available on Canvas.**

Program Information

Diversity Statement - At SJSU, it is important to create a safe learning environment where we can explore, learn, and grow together. We strive to build a diverse, equitable, inclusive culture that values, encourages, and supports students from all backgrounds and experiences.

Course Learning Outcomes (CLOs)

After studying "Introduction to Artificial Intelligence," a student should be able to demonstrate the following Course Learning Outcomes:

1. **Understand AI Concepts:** Gain a solid understanding of the fundamental concepts, principles, and methodologies related to Artificial Intelligence.

2. **Problem Solving:** Apply AI techniques to analyze and solve complex problems by designing algorithms and models.

3. **Machine Learning:** Comprehend the basics of machine learning, including supervised and unsupervised learning, and be able to apply them to real-world scenarios.

4. **Knowledge Representation:** Learn techniques for representing knowledge and reasoning, including logical frameworks and semantic networks.

5. **Natural Language Processing:** Grasp the fundamentals of natural language processing and its applications in tasks like sentiment analysis and language generation.

6. **Search and Optimization:** Develop skills in designing search algorithms and optimization techniques to find solutions efficiently.

7. **Ethical Considerations:** Understand the ethical implications and societal impacts of AI technologies, considering biases, privacy, and responsible AI development.

8. **AI Applications:** Explore various practical applications of AI, such as robotics, expert systems, and computer vision.

9. **Critical Thinking:** Develop the ability to critically evaluate AI solutions, algorithms, and their limitations.

10. **Teamwork and Communication:** Collaborate effectively with peers to solve AI-related problems and communicate findings clearly through presentations and reports.

These Course Learning Outcomes reflect the knowledge and skills a student is expected to gain from studying Introduction to Artificial Intelligence

Course Materials

Artificial Intelligence: A Modern Approach

Author: Stuart J. Russell and Peter Norvig
Publisher: Pearson
Edition: 4th Edition
ISBN: 0-13-461099-7

Technology Requirements

Laptop: This course requires the student to have a personal computer with internet access for all classes and quizzes.

Programming Language: Python
IDE (integrated development environment): Anaconda, Jupyter Notebook

Library Liaison

Yuqi He, Ph.D., MLIS
Engineering & Data Services Librarian
University Library
San Jose State University
(408) 808-2044

⊞ Course Requirements and Assignments

Meeting the Course Requirements and completing the Assignments are essential for successfully progressing in the course.

Quizzes (10%)

These quizzes will be explained in the class session and are expected to be completed by the conclusion of the lecture day. If additional time is required to finish the quizzes outside of class, they should be submitted on Canvas before midnight of the following day. These quizzes serve the purpose of motivating you to study and review the concepts and materials covered in the lecture.

Homework (30%)

Expected to be submitted by midnight as indicated in the schedule.

Midterm Exams (20%)

There will be one in-class exams.

Final Project (40%)

The final project must be taken on the scheduled day.

✔ Grading Information

Grade	Range (%)
A+	97 and above
A	93-96
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69

D	63-66	
D-	60-62	
F	Below 60	

🏛 University Policies

Per University Policy S16-9 (PDF) (http://www.sjsu.edu/senate/docs/S16-9.pdf), relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on the Syllabus Information (https://www.sjsu.edu/curriculum/courses/syllabus-info.php) web page. Make sure to visit this page to review and be aware of these university policies and resources.

📅 Course Schedule

Please be aware that this schedule is subject to modifications with appropriate prior notification. Any alterations will be communicated during class and published on the Canvas course platform.

Week	Date	Topics	Homework
1	8/22	Introduction	
	8/24	What is AI?	
2	8/29	Python 1	
	8/31	Python 2	HW 1 Due 9/7
3	9/5	Search 1	
	9/7	Search 2	HW 2 Due 9/14
4	9/12	Search 3	
	9/14	Search 4	HW 3 Due 9/21
5	9/19	Games 1	
	9/21	Games 2	HW 4 Due 9/28
6	9/26	Constraint Satisfaction Problems 1	
	9/28	Constraint Satisfaction Problems 2	HW 5 Due 10/5
7	10/3	Markov Networks and Bayesian Networks 1	
	10/5	Markov Networks and Bayesian Networks 2	HW 6 Due 10/12
8	10/10	Logic 1	
	10/12	Logic 2	HW 7 Due 10/19
9	10/17	Midterm Exam	
	10/19	Final Project Formulation	
10	10/24	Machine Learning 1	
	10/26	Machine Learning 2	

11	10/31	Machine Learning 3	HW 8 Due 11/7
	11/2	Machine Learning 4	
12	11/7	Deep Learning 1	
	11/9	Deep Learning 2	HW 9 Due 11/ 16
13	11/14	Natural Language 1	
	11/16	Natural Language 2	HW 10 Due 11/30
14	11/21	Thanksgiving Holiday: no class	
	11/23	Thanksgiving Holiday: no class	
15	11/28	Robotics	
	11/30	Final Project Meetings	
16	12/5	Time for working on Project	
	12/7	Time for working on Project	
17	12/12	Final Project Presentations	